

REMARKS/ARGUMENTS

Claims 11-20 have been elected for examination pursuant to a restriction requirement.

Claims 1-10 have been canceled.

The Examiner objected to claims 11-20 on the ground that additional structure of a treating apparatus should be recited in the body of claim 11. Claim 11 has been revised and now includes recitation of several structural elements which are considered to satisfy the Examiner's requirements.

The Examiner commented on her interpretation of the "means" limitations in claim 11. These comments are moot, because claim 11 and its dependent claims have been amended and no longer include any "means" elements.

Claims 11-20 were rejected as being unpatentable over the combination of Shekel et al. and Phan et al. In view of the amendments herein and the following comments, reconsideration is requested.

Shekel et al. appears to disclose a chemical etching apparatus that stores a history of use time of a treating liquid, adjusts the concentration of the treating liquid, and fixes an etching rate.

Phan et al. appears to disclose a technique of controlling over-etching by changing etching time based on feedback data such as of an etching rate received from a multiple beam sensor (63) during treatment, and three-dimensional data provided by a process engineer.

In contrast, the present invention stores, in the storage device, a relationship between use history and treating rate of the treating liquid and an up-to-date use history of the treating liquid. The calculating device derives a current treating rate from the relationship between use history and treating rate of the treating liquid and the up-to-date use history of the treating liquid. The computing device determines a corrected treating time by "extending a treating time" according to the current treating rate. Substrates are treated for the corrected treating time.

Unlike the present invention having the above characteristics, Shekel et al., although it stores a history of use time of the treating liquid, fixes an etching rate by "adjusting the concentration" of the treating liquid. This technique is basically different from the present invention which makes an adjustment of treatment time. Consequently, the invention of Shekel

et al. does not provide the features of the present invention, i.e. a storage device which stores a relationship between use history and treating rate and an up-to-date use history, a calculating device which derives a current treating rate from the relationship between use history and treating rate and the up-to-date use history, and a computing device which determines a corrected treating time by extending a predetermined treating time. Shekel et al. discloses or suggests nothing about treating substrates for a corrected treating time as claimed.

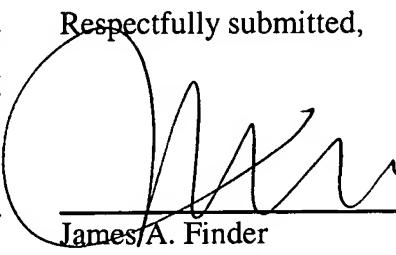
Phan et al. changes etching time, i.e. treating time, but it acquires information relating to the etching from a sensor during treatment, and adjusts treating time based both on this information and on three-dimensional data provided by a process engineer. In other words, Phan et al. fails to disclose the above-noted characteristic features of the present invention, i.e., the storage device which stores a relationship between use history and treating rate and an up-to-date use history, the calculating device which derives a current treating rate from the relationship between use history and treating rate and the up-to-date use history, and the computing device which determines a corrected treating time by extending a predetermined treating time. Phan et al. discloses or suggests nothing about treating substrates for a corrected treating time as claimed.

The Examiner, without evidence, denigrates the features of claims 14-19 as being either obvious subject matter or unpatentable subject matter. Nothing in the present record discloses or suggests any known calculating device that receives the data and/or performs the calculations specified in claims 14-16. And nothing in the present record discloses combinations including phosphoric acid in combination with the other elements recited in claims 17-19.

In view of the foregoing, allowance of claims 11-20 is requested.

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